

09/450,768
MA-385-US

AMENDMENTS TO THE CLAIMS:

1 1. (Previously presented) An asymmetrical digital subscriber line (ADSL) system for
2 transferring an analog audio signal of an analog communication equipment and high speed
3 digital data of a high speed digital data equipment provided on the side of a subscriber, from
4 and to a station, through one subscriber line, said system comprising:

5 an apparatus on the subscriber side in which an analog audio signal of the analog
6 communication equipment is converted into a digital audio signal,

7 said subscriber side apparatus comprising a line concentrator to concentrate the digital
8 audio signal together with the high-speed digital data by time division, and supplied to the
9 subscriber line after being modulated by a first ADSL modem, while after a signal received
10 from the station through the subscriber line is demodulated by the first ADSL modem, the
11 digital audio signal is converted into an analog audio signal and supplied to the analog
12 communication equipment, and at the same time high-speed digital data is supplied to the
13 high-speed digital data equipment; and

14 an apparatus on the station side in which a signal received from said apparatus on the
15 subscriber side through the subscriber line is demodulated by a second ADSL modem,
16 thereafter the digital audio signal is converted into an analog audio signal, which is supplied to
17 an analog telephone network, and at the same time high-speed digital data is supplied to a
18 high-speed digital data network, while an analog audio signal of the analog telephone network
19 is converted into a digital audio signal,

20 said station side apparatus comprising a line concentrator to concentrate the digital

3

09/450,768
MA-385-US

21 audio signal together with high-speed digital data of the high-speed digital data network by
22 time division, and supplied to the subscriber line after being modulated by the second ADSL
23 modem,
24 wherein said apparatus on the subscriber side and apparatus on the station side convert
25 each digital audio signal as well as each high-speed digital data into asynchronous transfer
26 mode (ATM) cells in each respective line concentrator and attach each destination address to
27 the ATM cells.

2. (Previously presented) An ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side converts each analog audio signal of a plurality of analog communication equipment into each digital audio signal and concentrates the digital audio signal together with the high-speed digital data by time division.

3. (Previously presented) An ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side and said apparatus on the station side convert each digital audio signal as well as each high-speed digital data into ATM cells, attach each destination address to the ATM cells in the line concentrator, and concentrate the digital audio signal together with the high-speed digital data.

4. (Previously presented) An ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side converts each analog audio signal of a plurality of analog communication equipment into each digital audio signal and concentrates the digital audio signal together with high-speed digital data by time division, and

4

09/450,768
MA-385-US

said apparatus on the subscriber side and apparatus on the station side convert each digital audio signal as well as each high-speed digital data into ATM cells, attach each destination address to the ATM cells in the line concentrator, and concentrate the digital audio signal together with the high-speed digital data.

5. (Previously presented) An ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side and apparatus on the station side divide each digital audio signal as well as high-speed digital data into fixed time slots and the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by the first ADSL modem.

6. (Previously presented) An ADSL system as set forth in Claim 1, wherein said apparatus on the subscriber side converts each analog audio signal of a plurality of analog communication equipment into each digital audio signal and concentrates the digital audio signal together with high-speed digital data by time division, and said apparatus on the subscriber side and apparatus on the station side divide each digital audio signal as well as high-speed digital data into fixed time slots and the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by the ADSL modem.

1 7. (Currently amended) An asymmetrical digital subscriber line (ADSL) system for
2 transferring an analog audio signal of an analog communication equipment and high speed
3 digital data of a high speed digital data equipment provided in an apparatus on a subscriber
4 side, from and to an apparatus on a station side, through one subscriber line, said system

5

09/450,768
MA-385-US

5 comprising:

6 said apparatus on the subscriber side comprises:

7 an analog-to-digital/digital-to-analog (AD/DA) converter for converting an
8 analog audio signal of the analog communication equipment into a digital audio signal or
9 converting a digital audio signal into an analog audio signal, to supply the analog audio signal
10 to the analog communication equipment, and supplying the high-speed digital data to the
11 high-speed digital data equipment;

12 a line concentrator for concentrating the digital audio signal and the high-speed
13 digital data by time division; and

14 a first ADSL modem for modulating the digital audio signal and the high-speed
15 digital data and supplying the modulated signal to the subscriber line, and demodulating a
16 modulated signal received from the station side through the subscriber line; and

17 said apparatus on the station side comprises:

18 a second ADSL modem for demodulating the modulated signal received from
19 said apparatus on the subscriber side through the subscriber line and modulating a digital audio
20 signal and high-speed digital data to be supplied to the subscriber line; and

21 a line concentrator for supplying the digital audio signal modulated by said
22 second ADSL modem to an analog telephone network as well as supplying the high-speed
23 digital data to the high-speed digital data network, and concentrating the digital audio signal
24 from the analog telephone network and the high-speed digital data from the high-speed digital
25 data network by time division, then to send the digital audio signal together with the
26 high-speed digital data to said first ADSL modem,

27 wherein said apparatus on the subscriber side and said apparatus on the station side

09/450,768
MA-385-US

28 convert each digital audio signal and the high-speed digital data into asynchronous transfer
29 mode (ATM) cells in each respective line concentrator and attach a destination address to the
30 ATM cells.

8. (Previously presented) An ADSL system as set forth in Claim 7, wherein said apparatus on the subscriber side comprises a plurality of ones of the AD/DA converters corresponding to a plurality of analog communication equipment; and

said line concentrator in said apparatus on the subscriber side concentrates each digital audio signal converted by the plurality of AD/DA converters, together with the high-speed digital data, by time division.

9. (Previously presented) An ADSL system as set forth in Claim 7, wherein said line concentrators in said apparatus on the subscriber side and in said apparatus on the station side convert digital audio signals and high-speed digital data into ATM cells in the line concentrators, attach each destination address to the ATM cells and concentrate the digital audio signal together with the high-speed digital data.

10. (Previously presented) An ADSL system as set forth in Claim 7, wherein said apparatus on the subscriber side comprises a plurality of ones of the AD/DA converter corresponding to a plurality of analog communication equipment, and said line concentrators in said apparatus on the subscriber side and in said apparatus on the station side convert digital audio signals and high-speed digital data into ATM cells, attach each destination address to the ATM cells in the line concentrator, and concentrate the digital audio signal together with the high-speed

7

09/450,768
MA-385-US

digital data.

11. (Previously presented) An ADSL system as set forth in Claim 7, wherein said line concentrators in said apparatus on the subscriber side and in said apparatus on the station side divide each digital audio signal and high-speed digital data into fixed time slots, and the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by said ADSL modem.

12. (Previously presented) An ADSL system as set forth in Claim 7, wherein said apparatus on the subscriber side comprises a plurality of ones of the AD/DA converter corresponding to a plurality of analog communication equipment, and said line concentrators in said apparatus on the subscriber side and in said apparatus on the station side divide each digital audio signal and high-speed digital data into fixed time slots, the digital audio signal together with the high-speed digital data is supplied to the subscriber line after being modulated by said ADSL modem.

13. (Previously presented) An ADSL system as set forth in Claim 1, wherein each said first and second line concentrator comprises an ATM cell convertor, and wherein individual destination addresses are attached to each ATM cell.

14. (Previously presented) An ADSL system as set forth in Claim 7, wherein each said first and second line concentrator comprises an ATM cell convertor, and wherein individual destination addresses are attached to each ATM cell.

09/450,768
MA-385-US

15. (Previously presented) A method of transferring an analog audio signal over an asymmetrical digital subscriber line (ADSL) containing high-speed digital data, said method comprising:

providing an apparatus on a subscriber side of the network receiving as inputs an analog audio signal of an analog communication device and high-speed digital data of a high-speed digital data device, said providing comprising:

converting the analog audio signal into a digital audio signal;

converting each digital audio signal and each high-speed data into

asynchronous transfer mode (ATM) cells in a line concentrator;

attaching each destination address to each ATM cell;

concentrating said converted digital audio signals together with said converted high-speed digital data into an ATM cell string signal using time division;

modulating said ATM cell string with a first ADSL modem; and

transmitting said modulated ATM cell string signal to the subscriber line; and

receiving the ATM signal from said subscriber side into an apparatus on the station side, said receiving comprising:

demodulating said ATM signal with a second ADSL modem located in said apparatus on the station side;

converting said concentrated digital audio signal into an analog audio signal;

transmitting said analog audio signal to an analog telephone network; and

transmitting said concentrated high-speed digital data to a high-speed digital network.

09/450,768
MA-385-US

16. (Previously presented) The method of claim 15, further comprising:

dividing each digital audio signal and each high-speed digital data into fixed time slots;
and

supplying said divided digital audio signals together with said high speed digital data to
said subscriber line after modulation by said first ADSL modem.

17. (Previously presented) The method of claim 15, further comprising:

extracting a payload from said ATM cell string and converting said extracted digital
audio signals into analog audio signals.

18. (Previously presented) The method of claim 15, wherein said concentrating said
converted digital audio signals together with said converted high-speed digital data using time
division comprises multiplexing said signals and said data in a multiplexer.

19. (Previously presented) The method of claim 15, wherein said concentrating said
converted digital audio signals together with said converted high-speed digital data comprises
modulating said ATM cells received from said line concentrator.

20. (Previously presented) The method of claim 15, further comprising:

transmitting an ATM cell string having an address attached for the analog telephone
network by said second line concentrator to said analog telephone network; and

transmitting an ATM cell string having an address attached for the high-speed digital
network to a high speed digital telephone network.